

VO2CF-B

VOLTMETER, DIFFERENTIAL

1. GENERAL. This procurement requires a solid-state differential and conventional voltmeter capable of measuring dc voltages.

2. CLASSIFICATION. Type II, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.

3. MEASUREMENT REQUIREMENTS. The equipment shall be capable of measuring dc voltages in differential and conventional voltmeter modes within the minimum ranges, accuracies, and sensitivities specified below.

3.1 Differential voltmeter mode. Range: 10 μ V to 1,100V.

3.1.1 Null ranges. See table I.

Table I. Null Ranges.

Input Ranges	Null Ranges
1V	0.0001, 0.001, 0.01, 0.1V
10V	0.0001, 0.001, 0.01, 0.1, 1V
100V	0.001, 0.01, 0.1, 1, 10V
1,000V	0.01, 0.1, 1, 10, 100V

3.1.2 Resolution. 1 μ V or 0.1 ppm of range, whichever is greater.

3.1.3 Differential mode dc accuracy. $\pm(0.005\%$ of input + 5 μ V) over the temperature range of 13°C to 33°C. Additional dc voltage inaccuracy due to temperature coefficient shall not exceed $\pm 0.00035\%/^{\circ}\text{C}$ over the temperature ranges of 0°C to 13°C and 33°C to 50°C.

3.1.4 DC differential mode stability. The drift of the indicated voltage with respect to the measured input reference value shall not exceed the limits specified in table II.

Table II. DC Differential Mode Stability.

Period	PPM of Input
60 minutes	5
24 hours	8
60 days	13

3.1.5 Differential mode input resistance. The dc input resistance at null shall exceed 100 megohms.

3.2 Conventional voltmeter mode. Range: 10 μ V to 1,100V.

3.2.1 Conventional mode accuracy. $\pm 3\%$ of full scale.

3.2.2 Conventional mode input resistance. The dc input resistance shall be at least 100 megohms on the 0.1, 1, 10, 100, and 1,000V ranges, 10 megohms on the 0.01V range, and 1 megohm on the 0.001 and 0.0001V ranges.

4. GENERAL REQUIREMENTS.

4.1 Power source. MIL-T-28800 nominal power source requirements are invoked. Maximum power consumption: 15W.

4.2 Weight. 10 kg (22 lb) maximum.

4.3 Lithium batteries. Per MIL-T-28800, lithium batteries are prohibited without prior authorization. A request for approval for the use of lithium batteries, including those encapsulated in integrated circuits, shall be submitted to the procuring activity at the time of submission of proposals. Approval shall apply only to the specific model proposed.